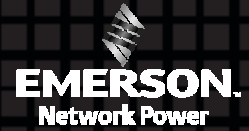


2013 Liebert Precision Cooling Training Catalog Program Descriptions



**Emerson Network Power Learning Center
Westerville Campus
530 Westar Blvd., Westerville, OH 43082
Phone: (614) 841-6120 / Fax: (614) 841-6133**

(Revised 10-16-12)

2013 Training Catalog

2013 Liebert Precision Cooling Training Catalog

Program Descriptions



General Information

- Instructors:** Courses are taught by experienced HVAC professionals using materials developed exclusively by our staff.
- Lodging:** Sleeping rooms blocked at a local hotel (special pricing). Breakfast included with room. Complimentary shuttle service available, upon request from the student. Detailed information is included with your confirmation letter.
- Class Hours:** Courses begin promptly and run from 8:00 a.m. to 4:30 p.m. (including last day). Homework is assigned. When making travel arrangements, be aware students must attend course in full to obtain credit.
- What to Wear:** Dress is business casual (**shorts, T-shirts as outer wear, and open-toed shoes are not acceptable**). Long sleeved shirts and long pants made of natural fibers (i.e., cotton) are required to enter our Lab area per Emerson Safety policy.
- Registration:** Fill out the registration form carefully and completely. The information provided will be used to create your certificate of completion. **If you are paying by credit card, do not include credit card information on the registration form.** Please contact Jill Seymour (Liebert Services Accounting Department) at 614-841-6383 to process payment.
- Confirmation:** We will confirm your registration with a confirmation letter and provide detailed information. Liebert reserves the right to reject any application.

IMPORTANT: Please do not make travel arrangements until you receive a confirmation from us.

Registration fees are in US dollars and cover the cost of the course, lunch each day and all of the materials the student receives in the classroom. It does not include evening meals, housing or transportation. These arrangements are the responsibility of the student.

Liebert reserves the right to change class dates or cancel classes. If we have not reached our minimum number of students for holding a class 45 days prior to the scheduled class date, the class will be subject to cancellation.

- Discounts:** **Multiple Students:** We offer a 10% discount on multiple student registrations from the same company. (Registrations must be submitted at the same time, for the same class, same date, and same location.)

- Cancellation Policy:** We allow cancellation up to five working days prior to the start of class without penalty. If less than five working days, a penalty of 20% of the class registration fee will be charged per student. Since many of our courses have a waiting list, we charge the full course fee when someone fails to attend without informing us or cancels once the class has started. Communication of cancellation should be to my attention either by email at ruthanne.redman@emerson.com or by fax at (614) 841-6133.

- Questions:** If you have any questions or require additional information, please contact us via email at ruthanne.redman@emerson.com or phone at 614-841-6120 or by fax at 614-841-6133.

2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Advanced and Graphics Controls / Deluxe System 3 / MiniMate2-DataMate

Course Number: PCT105

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$1,350.00

Length: 3 Days

Description:

Dedicated to the Deluxe System 3 and Challenger3000 with AM/AG controls, and current small systems (MiniMate2 and DataMate) products. Participants will learn via presentations combined with hands-on training using factory-built simulators. The simulator is constructed with an actual main control board, AM/AG control, fuse board and a temperature-humidity sensor. The small systems simulator is constructed with actual main control board and wall control. Topics covered are operations, programming, maintenance, service, and troubleshooting. Homework assignments are part of the session curriculum.

Who Should Attend:

Course is for the experienced HVAC technician responsible for startup and warranty repairs on the MiniMate2 and DataMates. All Factory Trained Technicians (FTT) must attend this course every three years to maintain Liebert FTT status on these products.

Format:

Participants will learn via instructor-led presentations, demonstrations, hands-on lab sessions, programming, troubleshooting and assessment.

Learning Outcomes:

- Identify Large Precision Cooling Products and their model numbers
- Operation and maintenance of the Deluxe Systems
- Program, wire, diagnose and troubleshoot Advanced Microprocessors
- Identify MiniMate2 and model numbers
- Procedures for Installation, start up and maintenance of the small systems
- Program, wire, diagnose and troubleshoot the MiniMate2
- Completion of this course will authorize the student to perform repairs on units covered in this class.

Credit and Requirements:

- HVAC experience required to enhance the learning experience
- To receive credit, students must meet minimum course standards including an 80% score on the post course assessment.
- Course eligible for 2.1 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program.



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Advanced and Graphics Controls / Deluxe System 3 / MiniMate2 - DataMate (Renewal)

Course Number: PCT106

Location: Online

Course Fee: \$450.00

Length: Self-Paced (password expires 30 days from first log on)

Description:

This course is designed as an online, self-paced review and test for the PCT105 course. The materials in the review portion of the online course touch on the major areas of the advanced and graphics controls. This course is broken down into multiple modules with a review quiz at the conclusion of each module. The quizzes are intended to reinforce the comprehension of each module and do not count toward the final grade. The review portion does not necessarily include everything covered in the final exam. The participant will need the manuals listed below to assist in successfully passing the final open book assessment.

Who Should Attend:

Technicians that have completed the PCT105 course and are required to obtain reauthorization of their Factory Trained Technician (FTT) status.

Format:

Participant will learn and be assessed via electronic documentation.

Learning Outcomes:

- Refresh their knowledge of the Advanced and Graphics Controls, as well as small systems.
- Successfully passing the online assessment with 90% or better

Credit and Requirements:

- Prerequisite is the PCT105 course (must have attended within last 5 years)
- To receive credit, students must meet minimum course standards including a 90% score for the online assessment.
- Qualifies for FTT renewal in the Precision Cooling Partner Program
- Manuals required are as follows:
 - TM-70100 Small Systems Training & Service Manual
 - TM-70170 AM (Advanced Microprocessor) / AG (Advanced Graphics)
 - SL-10058 Drycooler
 - SL-10066 Air Cooled Condenser
 - SL-10531 MiniMate2 – 2&3 Ton
 - SL-10532 MiniMate2 – 5 Ton O&M
 - SL-10533 MiniMate2 – 8 Ton O&M
 - SL-18200 Sys3 DX Installation Manual
 - SL-18205 Sys3 CW Installation Manual
 - SL-18345 Sys3 DX/CW Operations & Maintenance Manual

(All of the above manuals are included in the course fee and will be shipped to you.)



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



DS-VS / iCOM with Networking

Course Number: PCT206

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$1,595.00

Length: 4 Days

Description:

Focusing on DS-VS and Challenger with iCOM control, the new MC condenser and other heat rejection devices, students learn through a combination of presentations plus hands-on training using a factory-built simulator. The simulator is constructed with an actual main control board, iCOM control, fuse board and temperature-humidity sensor. Topics covered are operations, programming, installation basics, commissioning / startup, maintenance, service and troubleshooting. This is a fully tested program – knowledge base and practical skills - passing is 80% or better. Homework assignments are part of the session curriculum.

Who Should Attend:

Course is for the experienced HVAC technician responsible for startup and warranty repairs on the specified Liebert equipment. All Factory Trained Technicians (FTT) must attend this course every three years to maintain Liebert FTT status on this product.

Format:

Participants will learn via instructor-led presentations, demonstrations, hands-on lab sessions, programming, troubleshooting and tests.

Learning Outcomes:

- Identify large Precision Cooling Products and their model variation
- Procedures for installation and start up
- Navigate through iCOM controls
- Implement iCOM temperature-humidity programs
- Utilize iCOM programming menus, screens and icons
- Program, diagnose and troubleshoot large and small displays
- Perform basic unit-to-unit and multiple unit networking
- Completion of this course will authorize the student to perform startups, maintenance and warranty work on units covered in this class.

Credit and Requirements:

- HVAC experience required to enhance the learning experience
- To receive credit, students must meet minimum course standards including an 80% score on the post course assessment.
- Course eligible for 2.8 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



DSE Cooling Products

Course Number: PCT207

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$895.00

Length: Two Days (16 Hours)

Description:

A two-day session on the DA unit, Micro Channel Condenser (MC) and the new Pump Refrigerant Economizer (PR). Students will enjoy an active class that will incorporate the presentations plus hands-on training using factory built simulators, constructed with actual main control board, iCOM control, fuse board and temperature-humidity sensor. Topics covered are Operations, Programming, Installation Basics, Commissioning / Startup, Maintenance, Service and Troubleshooting. This is a fully tested program – knowledge base and practical skills - passing is 80% or better. Homework assignments are part of the class curriculum. Emerson/Liebert is authorized by IACET to offer 1.4 CEUs for successful completion of this program. HVAC experience required to enhance the learning experience.

Who Should Attend:

Class is for the experienced HVAC technician that will perform startup, maintenance and warranty repairs on the DSE cooling products.

Format:

Participants will learn via lecture-led presentations, demonstrations, hands-on exercises, programming, troubleshooting and assessment (passing is 80% or better).

Learning Outcomes:

- Identify large precision cooling products and their model numbers
- Procedures for installation and start up of DA, MC and PR precision cooling products
- Navigate through iCOM controls
- Implement iCOM temperature-humidity programs
- Utilize iCOM programming menus, screens and icons
- Program, diagnose and troubleshoot large displays
- Completion of this course will authorize the student to perform startups, maintenance and warranty work on units covered in this class.

Credit and Requirements:

Prerequisite for this course is the PCT206

- To receive credit, students must meet minimum course standards including an 80% score on the post course written assessment.
- Course eligible for 1.4 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



XD - Xtreme Density Cooling Products

Course Number: PCT310

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$1,350.00

Length: 3 Days

Description:

Session focuses solely on Liebert XD high heat-density cooling products. Emphasis is on the pumped refrigerant-based products in Liebert XD. Water-based products in XD are also presented. **The XDIO Smart Card functionality, operation and diagnostics and CANBus node ID assignment procedure will also be covered.** Course incorporates lectures with hands-on training using factory built simulators. Simulators are constructed with actual main control board, iCOM control, fuse board and temperature-humidity sensor. Topics covered are data center cooling, Liebert XD function, installation basics, operations, programming, maintenance, service and troubleshooting. Homework assignments are part of the class curriculum.

Who Should Attend:

Experienced HVAC technicians that will perform service and maintenance on the above Liebert equipment. All Factory Trained Technicians (FTT) must attend this course every three years to maintain Liebert FTT status on these products.

Format:

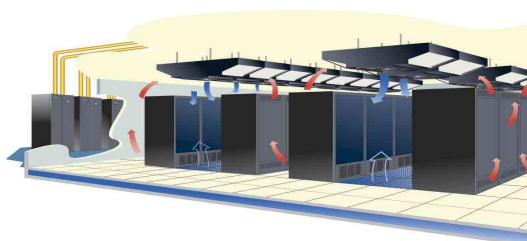
Participants will learn via instructor-led presentations, demonstrations, hands-on lab sessions, programming, troubleshooting and assessment.

Learning Outcomes:

- Identify XD design, components and configurations
- Understand the buildup and function of Liebert XD
- Identify Liebert XD modules/units and system configurations
- Procedures for installation, start up, maintenance and operations
- Navigate through iCOM controls
- Utilize iCOM programming menus, screens and icons
- Completion of this course will satisfy the training component of the factory authorized designation to perform startups, maintenance and warranty work on units covered in this class. **Prior to being authorized to do startups on equipment, there are additional requirements necessary to meet factory trained status, as noted in document Precision Cooling Partner Program (120.13).**

Credit and Requirements:

- HVAC experience required to enhance the learning experience.
- To receive credit students must meet minimum course standards include an 80% score on the post course written assessment.
- Course eligible for 2.1 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



iCOM Service Tool for Updating Software

Course Number: PCT401

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$1,895.00 (includes laptop with accessories and Service Tool)

Length: 4 Days

Description:

Dedicated session on iCOM software updates, XDIO Smart Card communication and updates, MC and PR circuit board updates, unit-to-unit networking, and Intellislot-based monitoring products. **NOTE: The registration fee includes a laptop computer, software, with user license and support.** Students will use the laptop and a simulator to network iCOM control and utilize service tool to update software. Homework assignments are part of the class curriculum. An iCOM simulator may be purchased for an additional fee (\$2,500.00 per simulator – if purchased within 30 days of attending this course, you will receive a \$300.00 discount).

Who Should Attend:

iCOM trained service personnel who anticipate a growing involvement with Liebert iCOM-controlled cooling products. This course must be taken prior to installing software in the field.

Format:

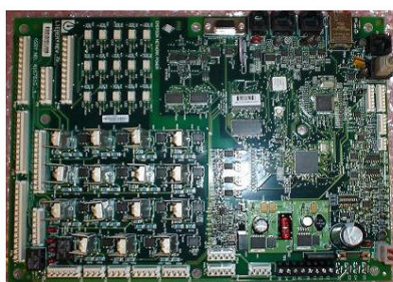
Participants will learn via instructor-led presentations, demonstrations, electronic documentation, hands-on lab sessions, programming, troubleshooting and tests

Learning Outcomes:

- Utilize iCOM Service Tool to update software on the iCOM control.
- Learn to network iCOM controlled units
- Learn to program and upgrade the XDIO Smart Card
- Learn to upgrade the MC and PR control boards
- Learn to troubleshoot iCOM unit-to-unit networks
- Learn how to set up and troubleshoot Intellislot-based monitoring cards

Credit and Requirements:

- **Prerequisite for this course is the PCT206**
- To receive credit, students must meet minimum course standards including an 80% score on the post course assessment.
- Course eligible for 2.8 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



CRV – Row-Based Precision Cooling Product

Course Number: PCT601

Location: Emerson Network Power Learning Center (OH) / Regional / Customer Site

Course Fee: \$895.00

Length: 2 Days

Description:

This course covers the Liebert CRV row-based precision cooling air conditioning product. Participants will engage via lectures, presentations and hands-on training using factory built simulators constructed with actual main control board, iCOM control, fuse board and temperature-humidity sensor. Topics covered are data center cooling, Liebert CRV function, installation basics, operations, networking, programming, maintenance, service and troubleshooting. Homework assignments are part of the class curriculum.

Who Should Attend:

Experienced HVAC technicians who will perform installations, service, maintenance and troubleshooting on the CRV.

Format:

Participants will learn via instructor-led presentations, demonstrations, hands-on lab sessions, programming, troubleshooting and assessment.

Learning Outcomes:

- Understand the design, application and function of Liebert CRV
- Identify Liebert CRV components
- Procedures for installation, maintenance and troubleshooting
- Navigate through iCOM controls
- Implement iCOM temperature-humidity programs
- Utilize iCOM programming menus, screens and icons
- Program, diagnose and troubleshoot large display
- Completion of this course will authorize the student to perform start ups, maintenance and warranty work on units covered in this class.

Credit and Requirements:

- To receive credit students must meet minimum course standards including an 80% score on the post course written assessment.
- Course eligible for 1.4 CEUs (authorized by IACET)
- Qualifies for FTT renewal in the Precision Cooling Partner Program



2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Customized Training At Your Site

We would be happy to provide any of our standard offerings or to modify or develop specialized Precision Cooling training to meet your specific needs. Customized training can be arranged at your location or at ours, and can be scheduled to meet your time frame. Fee to be determined. If you wish to receive further information on this, please contact Ruthanne Redman at 614-841-6120 / ruthanne.redman@emerson.com or Steve Wagner at 614-841-6118 / steve.r.wagner@emerson.com.

Schedules for training held at the Emerson Network Power Learning Center and Regional Sites are subject to change. We will inform the registered students of any changes. Please register early since classes do fill up quickly. Email or call with any questions.

For Registration, Dates and Information

Please contact Ruthanne Redman at Tel: 614-841-6120; Fax: 614-841-6133;
Email: ruthanne.redman@emerson.com

or

Contact Steve Wagner at Tel: 614-841-6118; Email: steve.r.wagner@emerson.com



As an IACET Authorized Provider, Emerson Network Power/Liebert Corporation offers CEUs for programs that qualify under IACET guidelines.

2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Emerson Network Power Learning Center Westerville, OH (Class Dates Are Subject To Change*)

2013	PCT105	PCT206	PCT207	PCT310	PCT401	PCT601
January	–	7 – 10	17 – 18	14 – 16	22 – 25	28 – 29
February	4 – 6	11 – 14	7 – 8	20 – 22	25 – 28	–
March	25 – 27	18 – 21	28 – 29	6 – 8	12 – 15	4 – 5
April	1 – 3	8 – 11	4 – 5	15 – 17	22 – 25	18 – 19
May	1 – 3	6 – 9	29 – 30	13 – 15	21 – 24	16 – 17
June	3 – 5	10 – 13	6 – 7	17 – 19	25 – 28	20 – 21
July	–	9 – 12	–	22 – 24	16 – 19	25 – 26
August	5 – 7	12 – 15	1 – 2	19 – 21	27 – 30	22 – 23
September	4 – 6	10 – 13	–	16 – 18	24 – 27	19 – 20
October	16 – 18	8 – 11	3 – 4	21 – 23	29 – Nov. 1	24 – 25
November	–	5 – 8	25 – 26	18 – 20	12 – 15	21 – 22
December	3 – 5	10 – 13	–	16 – 18	–	19 – 20

* If we have not reached our minimum number of students for holding a class 45 days prior to the scheduled date, the class will be subject to cancellation.

2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Regional Schedule (Class Dates Are Subject To Change*)

2013	PCT105	PCT206	PCT207	PCT310	PCT401	PCT601	Location
January	–	8 – 11	–	–	14 – 17	–	Irvine, CA
February	–	5 – 8	–	–	11 – 14	–	Toronto, Canada
	20 – 22	25 – 28	–	–	–	–	Tampa, FL
March	6 – 8	11 – 14	–	–	–	–	Ashburn, VA
	–	5 – 8	–	11 – 13	–	14 – 15	Portland/Seattle
	–	19 – 22	–	–	25 – 28	–	Plainview, NY
April	3 – 5	8 – 11	–	–	–	–	Richmond, VA
	–	–	8 – 9	–	–	–	Irvine, CA
May	–	–	6 – 7	8 – 10	–	–	Plainview, NY
	–	–	9 – 10	–	13 – 16	–	Ashburn, VA
June	BY REQUEST ONLY						
July							
August							
September	–	–	16 – 17	18 – 20	–	23 – 24	Richmond, VA
	–	–	–	–	–	12 – 13	Plainview, NY
October	–	14 – 17	3 – 4	–	7 – 10	–	Portland/Seattle
					22 – 25	28 – 29	Ashburn, VA
	–	–	17 – 18	21 – 23	–	24 – 25	Tampa, FL
November	–	–	14 – 15	18 – 20	–	21 – 22	Toronto, Canada
December	–	–	–	9 – 11	–	12 – 13	Irvine, CA

*If we have not reached our minimum number of students for holding a class 45 days prior to the scheduled date, the class will be subject to cancellation.

2013 Liebert Precision Cooling Training Catalog

Program Descriptions



Training Registration Form

Student Information:		
Student Name:		
Company:		
Company Address:		
City:	State:	Zip or Postal Code:
Student Email Address:		
Contact Information:		
Name:		
Phone:	Fax:	
Contact Email Address:		
Class Information:		
Class Code:	Class Date:	
Location:	Registration Fee:	
Billing Address and Method of Payment:		
Check No.:	Purchase Order No.:	
Company:		
Address:		
City:	State:	Zip or Postal Code:
Attention:		
Federal Tax ID*:		
Comments:		

***Liebert Services Accounting Dept. requires a Federal Tax ID for all methods of payment.**

IF USING A CREDIT CARD, PLEASE TYPE THE WORDS "CREDIT CARD" IN THE COMMENTS SECTION ABOVE.
CONTACT JILL SEYMOUR (LIEBERT SERVICES ACCOUNTING) TO PROCESS THE CREDIT CARD PAYMENT.
SHE CAN BE REACHED AT 614-841-6383.

A confirmation letter will be provided upon receipt of this form. Please contact Ruthanne Redman with questions (Phone: 614-841-6120 / Fax: 614-841-6133 / Email: ruthanne.redman@emerson.com).